

Attorney Docket No.: DRE-0063  
Inventors: Basude et al.  
Serial No.: 09/980,134  
Filing Date: July 2, 2002  
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#### REMARKS

Claims 1-14 are pending in the instant application. Claims 1-14 have been rejected. Claims 10, 11, 12, 13 and 14 have been amended. Support for these amendments is provided in the specification at page 6, lines 7-10 and page 8, lines 11-12. Thus, no new matter is added by these amendments. Reconsideration is respectfully requested in light of these amendments and the following remarks.

#### **I. Rejection of Claims 10-14 under 35 U.S.C. § 112, second paragraph**

Claims 10-14 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner suggests that the recitation of "objects" is indefinite because it is unclear what is encompassed by this term. In particular, the Examiner suggests that it is unclear how the "surface" can comprise an "object".

Accordingly, in an earnest effort to advance the prosecution of this case, Applicants have amended the claims to clarify that the claimed ecogenic surface enhances ultrasound detection of an object by providing a coating with a hydrophobic surface or a

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surface with an affinity for a specific gas and gas bubbles which attach to or encapsulate the object to be ultrasonically detected. Support for this amendment is provided in the specification at page 6, lines 7-10 and page 8, lines 11-12.

This amendment clarifies the relationship of the ecogenic surface to the object.

Thus, withdrawal of this rejection under 35 U.S.C. § 112, second paragraph, is respectfully requested.

## II. Rejection of Claims 1-7 and 9-14 under 35 U.S.C. § 102(b)

Claims 1-7 and 10-14 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Razor (U.S. Patent 5,141,738). The Examiner suggests that Razor discloses a composition for ultrasound imaging comprising a microparticle having a hydrophobic surface and a gas microbubble.

Claims 1-7 and 9-14 have also been rejected under 35 U.S.C. § 102(b) as being anticipated by Schneider (U.S. Patent 5,271,928). The Examiner suggests that Schneider discloses a composition for ultrasound imaging comprising a microparticle having a hydrophobic surface (such as a liposome) and microbubbles which are associated therewith in that the liposomes stabilize the microbubbles.

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The Examiner suggests that limitations in claims 2-5 and 10-14 are product-by-process limitations which do not distinguish the end product from that taught by Rasor and Schneider.

Applicants respectfully traverse these rejections.

At the outset, it is respectfully pointed out that the claims of the instant application are drawn to a surface stabilized microbubble comprising a microparticle having a hydrophobic surface or an affinity for a specific gas and a gas microbubble which attaches to or encapsulates the microparticle. Neither of the cited prior art references teach a gas microbubble which attaches to or encapsulates the microparticle.

Instead, teachings of Rasor et al. at col. 6, line 57, suggested by the Examiner to teach that the "gas microbubble attaches to or is in contact with the microparticle", when read in full context of the teaching of the paragraph, relate to a solid particulate microbubble, not a gas microbubble.

Schneider, at col. 4, lines 47-51, teaches that air or gas is introduced into the liposome solution so that a suspension of microbubbles will form. The suspension of microbubbles is taught to be stabilized by the presence of liposomes in lamellar form. There is no mention, however, of attachment to or encapsulation of

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the liposomes by the gas microbubbles.

MPEP § 2131 is clear; to anticipate a claim a reference must teach all the elements of the claim. Since neither of the cited references teach a gas microbubble encapsulating or attaching to a microparticle, neither of the cited references can anticipate the instant claimed invention.

Thus, withdrawal of these rejections under 35 U.S.C. § 102(b) is respectfully requested.

### III. Rejection of Claim 8 under 35 U.S.C. § 103(a)

Claim 8 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Rasor (U.S. Patent 5,141,738) or Schneider (U.S. Patent 5,271,928) in view of Unger (U.S. Patent 5,542,935). The Examiner suggests that it would have been obvious to one of skill in the art to use the compositions disclosed by Rasor or Schneider for drug delivery by insonating the microbubbles at a desired site in vivo because Unger teaches that analogous gas-filled microbubbles may further contain various drugs to yield a drug delivery means having the advantage of site-specific delivery by insonating the microbubbles at a desired site in vivo. The Examiner suggests that one of ordinary skill in the art would have

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been motivated to employ the drug delivery methods disclosed by Under using the compositions disclosed by Rasor and Schneider to obtain a composition which is useful for both ultrasound imaging and site-specific therapy using a single administration, wherein the insonating step provides release of the drug specifically at the treatment site.

Applicants respectfully traverse this rejection.

Teachings of Rasor and Schneider have been discussed in detail in Section II, *supra*.

Unger et al. teach a drug delivery composition with temperature activated gaseous precursor filled microspheres comprising a therapeutic compound. The microspheres may be used for targeted therapeutic delivery *in vivo* or *in vitro*. The microsphere is relatively spherical in shape with an internal void. The therapeutic compounds are released when the compound reaches a selected activation or transition temperature.

Like Rasor and Schneider, Unger et al. fails to provide any teaching or suggestion of a gas microbubble which attaches to or encapsulates the microparticle.

Accordingly, these references when combined fail to provide the requisite teaching or suggestion of all the limitations of the claims to render obvious the instant claimed invention. See MPEP

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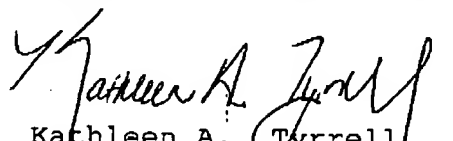
§ 2143.

Thus, withdrawal of this rejection under 35 U.S.C. § 103(a) is respectfully requested.

#### IV. Conclusion

Applicants believe that the foregoing comprises a full and complete response to the Office Action of record. Accordingly, favorable reconsideration and subsequent allowance of the pending claims is earnestly solicited.

Respectfully submitted,

  
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